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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,103	06/20/2003	Jack Chen	M301	7788

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EXAMINER


WHITTINGTON, KENNETH

ART UNIT	PAPER NUMBER
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2862

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/600,103	Applicant(s) CHEN, JACK	
	Examiner Kenneth J Whittington	Art Unit 2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

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DETAILED ACTION

Claim Objections

1. Claim 6 is objected to because it is incomplete. It fails to positively recite the determination of the direction of rotation. The claims recites that a direction of rotation "may be" determined, which does not require any determination. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Apel et al. (US 6,201,389). Regarding claim 1, Apel et al. discloses an angular position sensor to determine the angular rotation of a shaft with respect to a stationary body (See Apel et al. col. 2, lines 12-27), comprising:

a rotor having a bore, the rotor having a circumference
(See FIGS. 1 and 2, item 15),

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at least one magnetic member on the rotor, the magnetic member having a magnetic pole at a first position on the circumference of the rotor (See FIGS. 1 and 2, item 3 and note outer pole N in FIG. 2),

a housing surrounding a portion of the rotor (See FIG. 1, item 10),

means for maintaining the housing stationary against rotation with said shaft (this feature is inherent in the structure and operation of the sensor as disclosed in Apel et al.), and

detection means on the housing adjacent the circumference for detecting the magnetic polarity of a portion of the rotor (See FIGS. 1 and 2, item 1).

Regarding claim 2, Apel et al. discloses a second magnetic pole at a second position on the circumference at a position 180 degrees from the magnetic pole (See FIG. 2, item 3, note outer pole S).

Regarding claim 3, Apel et al. discloses the magnetic member being an annular member having a central opening concentric with the opening of the rotor (See FIG. 2, items 3 and 15).

Regarding claim 4, Apel et al. discloses means responsive to the detection means for generating a wave indicative of the

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magnetic polarity detected by the detection means, the wave being indicative of the angular orientation of the shaft with respect to the stationary body (See FIGS. 1 and 2, item 1, and FIG. 4, curve UH1, note that the Hall IC element 1 detects the magnetic field and generates the sinusoidal wave UH1 representative of the rotation, see col. 5, lines 19-35).

Regarding claim 5, Apel et al. discloses an A/D converter for converting the sine wave signal into a digital output (See FIG. 3, item 91).

Regarding claim 6, Apel et al. discloses a second detection means on said housing angularly spaced from said detection means at an angle other than 180 degrees (See FIGS. 1 and 2, item 2, assuming that the determination of rotation is not performed, see objection to this claim above).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Apel et al. in view of Aab (US 5,500,585).

This rejection is on the basis that a determination of the direction of rotation is performed (see objection to this claim above). Apel et al. teaches each and every limitation of claim 1 as discussed above. Apel et al. further teaches of a second detection means oriented at an angle other than 180 degrees from the first detection means (See Apel et al. FIGS. 1 and 2, item 2). However, Apel et al. does not explicitly disclose a determination of a direction of rotation. Aab teaches a device for detecting the position, speed and rotation of a movable shaft using a pair of magnetic field sensors oriented at an angle about the rotating shaft that is not 180 degrees (See FIG. 3, magnetic member/shaft 32, sensors 33 and 34, see also col. 4, lines 31-47 and col. 2, lines 9-26). It would have been obvious

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to use the direction determination of Aab in the position apparatus of Apel et al. One having ordinary skill in the art would have been motivated to do so to measure the speed and direction of rotation in a device that measures only position and to provide a device that can determine the speed and direction of rotation based upon the position signals from a pair of positional magnetic field sensors (See Aab col. 1, lines 13-19). One having ordinary skill would also have been motivated to place the speed and direction detection device as taught in Aab in a housing surrounding a shaft as taught by Apel et al. to protect the detection device and determine the direction of rotation of such rotation shaft.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Herden (US 5,861,745), Oudet et al. (US 5,528,139), Willett (US 4,789,826), Babin (US 2004/0100252) and Stumpe et al. (US 6,448,761) each disclose rotation detection means having a generally annular single pole magnet and a single sensor for detecting an angular position. Nehl et al. (US 6,720,763), Lemarquand (5,130,650), Lin et al. (US 6,566,860) and Lamm et al. (US 6,104,185) each show varying designs for rotary position detecting devices. Schwabe (US 6,717,401) discloses a rotor and housing design.

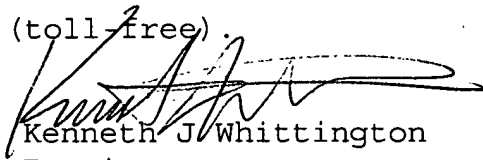
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Turner (US 2003/0001563) discloses a rotary speed and direction detection device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J Whittington whose telephone number is (571) 272-2264. The examiner can normally be reached on Monday-Friday, 7:30am-4:00pmm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (571) 272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kenneth J Whittington
Examiner
Art Unit 2862

kjw


N. Le
Supervisory Patent Examiner
Technology Center 2800